

The esemde layer and method of doing business

The purpose of this document is to describe the "esemde layer", and to ascertain as to whether there are any grounds for patent protection.

Introduction to the esemde product and service.

Esemde provides a service to Personal Communication Services (PCS) Carriers and wireless application providers.

PCS operators are quintessentially voice centric in their range of services and have little to none to offer in terms of real data services. The main area of competition is voice, and the operators channel their efforts and expertise in marketing, selling, supporting and provisioning for voice.

Wireless application providers currently use alternative wireless networks such as RAM, ARDIS, MOBITECH, CPDP and ReFLEX to offer services such as Palm Connected, YadaYada, Minstrel, 2-way paging, Aeris Telemetry, Celemetry, OnStar, @ROAD etc.

These application providers would, in many instances prefer to use a PCS network as the delivery backbone for these services since PCS is digital, far more secure, and supports voice and fax services and has a greater data services coverage.

The method used for delivery of messages for the esemde applications is known as SMS- Short Message Service. All PCS technologies (GSM, TDMA and CDMA) can use SMS as it forms part of the specification.

PCS operators and data / SMS applications

PCS operators do not deal on a one-to-one basis with application providers since the applications would require:

- Retraining of sales force
- Retraining of customer base
- New marketing campaigns
- Additional network resources to handle extra traffic
- New billing procedures for new services.
- Potentially lower revenue than the expense to support it.

Such efforts, it would seem, would remove focus from the core objective of competing with voice services.

Despite the new revenue streams data services would bring, it has been the experience of esemde that operators will not cooperate with data application providers who have one or two applications to offer. Application providers who have applications that would serve the vertical segments such as Telemetry and Telematics, are also ignored.

Clearly, what is needed is an entirely new approach to the matter and for a company to provide a service as an outsourced vendor that would:

- Aggregate a number of single applications
- Provide integrated infrastructure so as to handle system resources
- Market and sell applications
- Design and develop applications
- Buy and resell "bandwidth"
- Provide 24/7 support for the service and applications
- Host other application provider's solutions

To expand on these salient points:

Aggregate applications

Using the esemde layer- a collection of servers, hard and software processes, would handle the applications, in such a way that they can all be hosted concurrently. The esemde layer would ensure all messages are submitted to the wireless network, and so that the network relays messages (from users) back to the esemde layer for onward delivery to the application server

Provide integrated infrastructure so as to handle system resources

Esemde will integrate its own Short Message Service Center (SMSC) in the wireless operator's network so that all messages from the applications esemde hosts use this as opposed to the carrier's existing system network resources. This means that esemde will bear the cost of any upgrades, capacity expansion, maintenance, running and support costs.

Market and sell applications

Since the new applications are outside the core focus and expertise of the carriers, esemde will market and sell these applications in conjunction with the application provider.

Design and develop applications

There are many applications that will require design and development that will now be possible with esemde's service. Esemde will work to produce solutions in-house or co-develop with application providers.

Buy and resell "bandwidth"

Despite esemde owning and running the short message server, esemde has to pay the operator for use of the wireless network- the very network that delivers and receives wireless messages for the applications. The esemde business model is based upon messages being sold to the application providers for onward sale to their user base or in some cases from esemde directly to a large customer base. In any case, esemde will buy messages en masse and resell them to the application developers.

Provide 24/7 support for the service and applications

In accordance with the esemde charter, all applications will require support since esemde hosts them; it is clearly not in the domain of the operator to do so. In conjunction with the application provider, esemde will provide support for the SMSC, and the applications.

Host other application providers' solution

This is self-explanatory.

How esemde achieves the above.

How esemde achieves the above is through application of the esemde layer. The esemde layer is a two-dimensional entity that consists of two layers:

1. The business layer
2. The technology layer

The business layer

The Business layer provides the services as described above, and is designed to promote PCS network usage for data applications, to host multiple wireless applications, and provide the infrastructure to handle these applications and the messages.

The technology layer

The technology layer performs a series of individual soft and hardware tasks & functions that essentially, carry out the following.

- Convert incoming, HTML, WML etc formatted data and convert to ASCII text, XML or whatever format is required.
- Format the data for submission to the SMSC (Short Message Service center) in a series of protocol choices- SMPP, SMCI, SEMA, UCP CIMD etc.
- Extract billing records form SMSC and format as appropriate for billing server.
- Prepare the data for presentation on the web- so that telemetry status, vehicle positioning and other applications data can be read on the WWW, or use the Internet to stream data to a custom desktop application.
- Convert to streaming IP if desired.
- Aggregate content from a variety of sources
- Store all messages sent and received
- Route messages to the appropriate application
- Interface to a mail client to deliver (certain) messages to and from email clients.
- Provide a WWW-based sign-up page for users.
- Provide an authorization and authentication process for new users.

Another feature of the layer is the special telemetry services grouping. This may also be a unique point. Some telemetry applications will work over a dial-up connection as opposed to using SMS. The esemde layer will terminate the calls from a telemetry application, and convert the incoming data stream to streaming IP, for onward transmission to the customer's server. Alternatively, it would process the incoming data in such a way that it detects pertinent data (probably in XML) and populates a databases fields and records with the appropriate contents.

Esemde Product.

Does esemde have a product and technology? We use products and technology to supply the services described above. They are, in large:

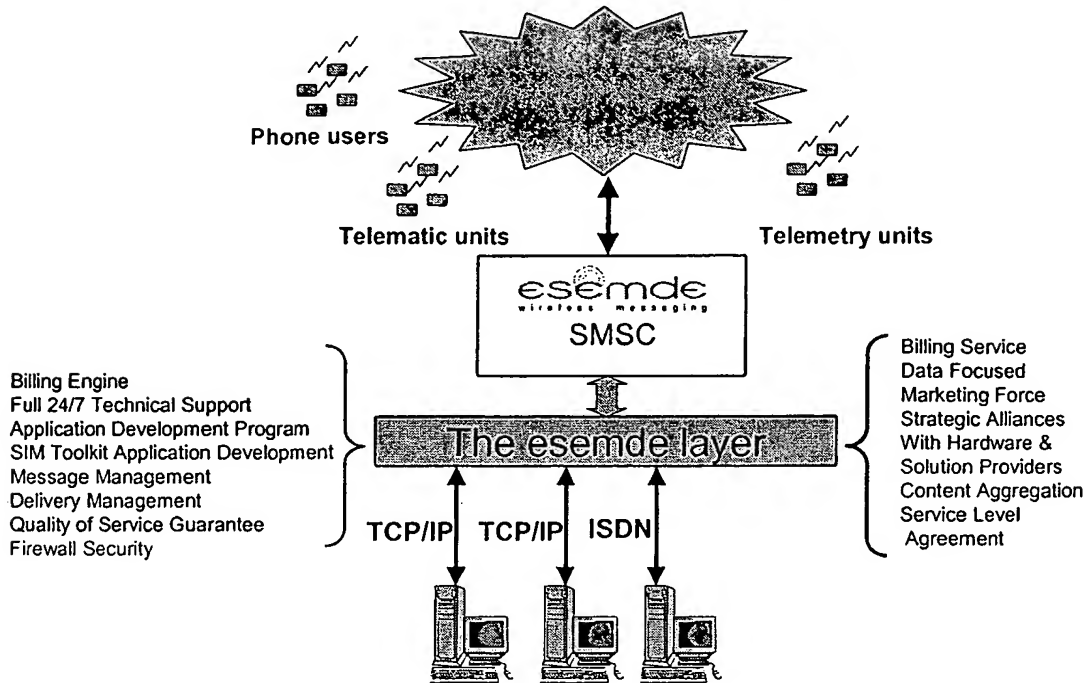
- SMS- Short Message Service- an existing technology, already defined in all PCS standards.
- Wireless communication network- already built and owned by the PCS operator
- SMSC- the Short Message Service Center- supplied by a vendor and already developed.
- Applications- some applications are potentially proprietary, but this will be determined at some other juncture.
- The esemde layer- uses software procedures that, in their entirety, form an essential part of the whole layer, and that support the business layer.

Individually, each element and process be it technology or business is common to many other processes. It is, however believed that in unison they do represent a unique approach to the matter.

The following diagrams explain some of the processes described above.

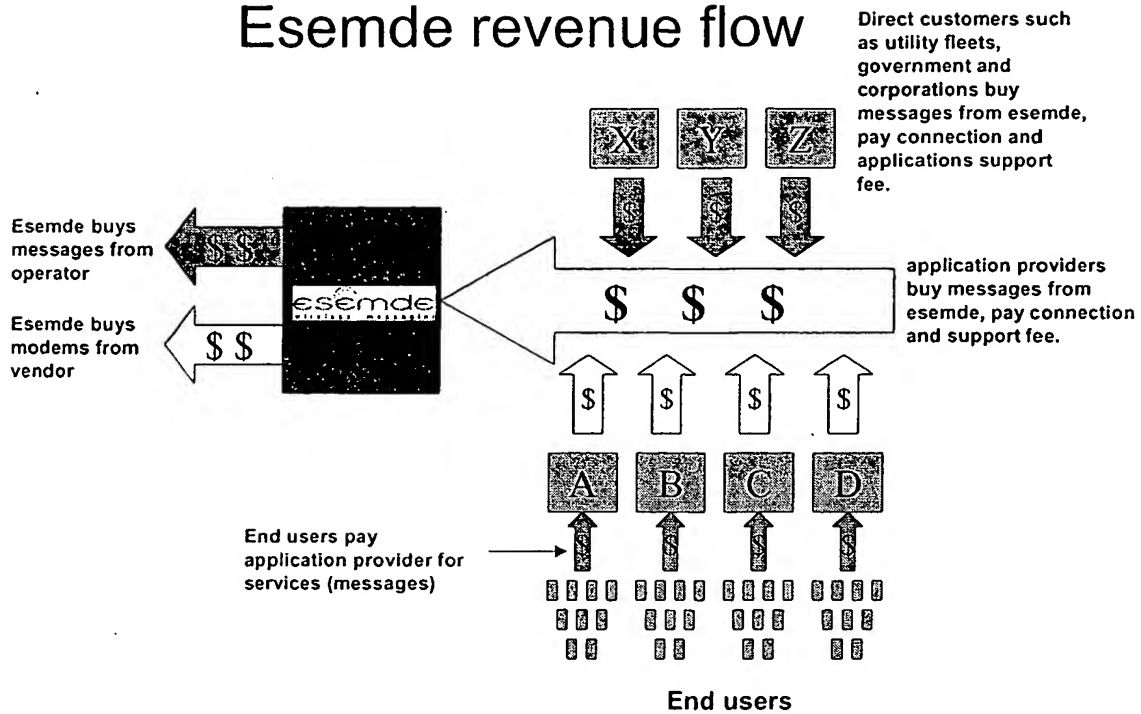
See below.....

Esemde, Carrier, Partner and User Physical Relationship

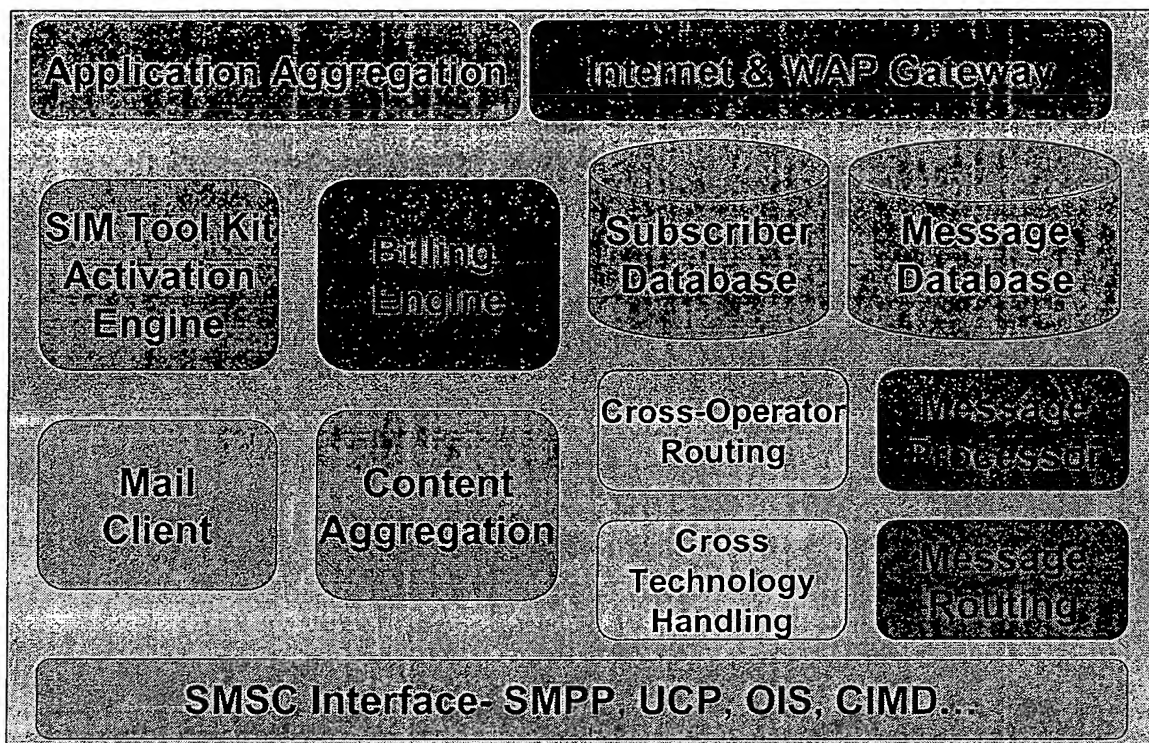


Partners Accessing Their Wireless Clients Via the Internet or a Dedicated Link

Esemde revenue flow



The esemde Technology Layer Architecture



Converting dial-up data for the purpose of populating database fields

